

REMARKS

The specification has been amended to add section headings and to remove references to specific claims. In particular, the specification has been amended to incorporate the subject matter of original claim 17.

Claims 17, 24, 25 and 27 have been amended to improve grammar. The present amendment of claims 24, 25 and 27 has no limiting effect on the scope of the claims. Claim 17 has been additionally amended to recite “a display” as supported by Figures 1, 2, 3a and 3b of the present application.

New claims 33-37 have been added. Specifically, new claim 33 depends upon independent claim 17 and explicitly defines that the “first time related data item is based on the Hour-Minute-Second (H-M-S) system that consists of dividing a day into 24 hours, with 1 hour being divided into 60 minutes, and with 1 minute being divided into 60 seconds” as defined in the instant specification on page 2, lines 7-8. New claim 34 depends upon claim 17 and explicitly defines that the “second time related data item is based on the decimal system that consists of dividing a day into 10 tenths of a day, with each tenth of a day being divided into 10 hundredths of a day, and with each hundredth of a day being divided into 10 thousandths of a day” as supported on page 2, lines 7-13, and Figures 3a and 3b of the instant application. New claim 35 depends upon independent claim 17 and recites that the “display” includes a “first display and a second display,” wherein the “first display displays the first time related data item and the second display displays the second time related data item” as supported on page 6, lines 7-10, of the present specification. New claim 36 depends upon claim 35 and

recites “the first display includes either four digits or first and second hands” as supported on page 7, lines 9-14, and Figures 3a and 3b of the present application.

New independent claim 37 is directed to an embodiment in accordance with the present invention incorporating the subject matter of claims 17 and 33-36 as supported by Figures 1, 2, 3a and 3b of the present application. Claim 37 recites an “electronic universal timepiece” as supported on page 1, lines 6-13, which refers to timepieces that display a plurality to time related data simultaneously.

The present amendment adds no new matter to the instant application.

The Invention

The present invention pertains broadly to an electronic timepiece for displaying several time related data, such as time in a conventional H-M-S format and time in a digital or metric format. In particular, a first embodiment in accordance with the present invention provides the user with an electronic timepiece allowing display of at least a first time related data item and a second time related data item, the first time related data item, being based on the Hour-Minute-Second system, is displayed by a display, this timepiece including: (a) a time base supplying pulses to a frequency divider circuit including N binary division stages, wherein the frequency divider circuit is arranged to supply first control pulses allowing the first time related data item to be formed and displayed by the display; and (b) generating means arranged to supply, from auxiliary control pulses originating from said time base, second control pulses allowing said second time related data item to be formed and displayed by the display, wherein the second time related data item is based on a decimal system in which time is

divided at least into thousandths of a day and wherein the second time related data item is displayed with three digits so that the second time related data item cannot be confused with the first time related data item.

In accordance with a second embodiment of the present invention, an electronic universal timepiece is provided that allows display of at least a first time related data item and a second time related data item, the first time related data item, being based on the Hour-Minute-Second system that consists of dividing a day into 24 hours, with 1 hour being divided into 60 minutes, and with 1 minute being divided into 60 seconds, is displayed by a display, the timepiece comprising: (a) a time base supplying pulses to a frequency divider circuit, the frequency divider circuit including N binary division stages, wherein the frequency divider circuit is arranged to supply first control pulses allowing the first time related data item to be formed and displayed by the display; and (b) generating means arranged to supply, from auxiliary control pulses originating from the time base, second control pulses allowing the second time related data item to be formed and displayed by the display; wherein the first time related data item is formed and displayed by the display as hours and minutes, either with four digits or first and second hands for displaying hours and minutes in the Hour-Minute-Second system; wherein the second time related data item is based on a decimal system that consists of dividing a day into 10 tenths of a day, with each tenth of a day being divided into 10 hundredths of a day, and with each hundredth of a day being divided into 10 thousandths of a day, and wherein the second time related data item is displayed by the display in the decimal system as tenths, hundredths and thousandths of a day with three digits.

Various other embodiments in accordance with the present invention are recited in the present claims. The embodiments in accordance with the present invention have multiple advantages to include providing an electronic timepiece that simultaneously displays time in both the H-M-S system format and in the digital or metric format. In addition, timepieces in accordance with the present invention can display these two different types of time related data in a manner that is unlikely to be confusing to a user. Lastly, the circuitry of the present invention can provide the two types of time related data from a single time base and can do so without relying on an arithmetic conversion circuit.

The Rejections

Claims 17-30 stand rejected under 35 U.S.C. § 102(b) as anticipated by Ikeda (U.S. Patent 4,185,452). Claims 31 and 32 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Ikeda.

Applicants respectfully traverse the rejection and request reconsideration of the application for the following reasons.

Applicants' Arguments

Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim. Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick, 221 U.S.P.Q. 481, 485 (Fed. Cir. 1984). In the present case, the Ikeda Patent does not teach each and every element of the claimed invention, arranged as in the present claims.

The Ikeda Patent

The Ikeda Patent teaches a “digital time display system” in which one hour is represented by 10,000 times a time interval that is equal to 0.36 second in the currently prevailing clock display system, which is based on a scale of 60 (see Abstract). In other words, the Ikeda Patent is directed to a digital time display as shown in Figure 1 wherein the **‘the time length of one hour remains unchanged** while it is divided into 100 “new minutes”, one of which is divided into 100 “new seconds” (col. 1, lines 55-62). Thus, when Ikeda teaches display elements (43) through (48), as shown in Figure 3, Ikeda teaches “‘hour” display elements’ (43), (44), “‘minute display” elements’ (45), (46), and “‘second” display elements’ (47), (48), wherein the “hours” are conventional hours of the H-M-S system (col. Lines 55-57). On the other hand, as is clear from col. 1, lines 55-62, and from claim 1 of the Ikeda Patent, only the “minutes” and “seconds” are switchable from the conventional 60 scale to the unconventional 100 scale taught by Ikeda. In particular, the unconventional 100 scale taught by Ikeda divides up each conventional hour into 100 “new minutes” and each “new minute” into 100 “new seconds” so there are 24 hours in a day, which corresponds to 2400 minutes or to 240,000 seconds.

Those persons of ordinary skill in the art would recognize that the digital time display system taught by Ikeda is different from either the conventional H-M-S system or the decimal system, such as described on page 2, lines 7-13, of the present specification. In the conventional H-M-S system, there are 24 hours in a day, which corresponds to 1440 minutes or to 86,400 seconds. In the decimal system, as defined

on page 2, lines 8-13, of the present specification, there are 10 tenths of a day, each of which corresponds to 100 hundredths or to 1000 thousandths.

The Examiner is in error when she characterizes the Ikeda Patent as teaching (a) a “first time related data item being based on the Hour-Minute-Second system” and (b) a “second time related data item [is] based on a decimal system in which time is divided at least into thousandths of a day” as recited in claim 17. Specifically, the Ikeda Patent does not teach, or even suggest, the “decimal system” recited in claim 17 in accordance with the present invention because the present application defines the meaning of “decimal system” on page 2, lines 8-13, of the specification to be a system that divides the day into tenths, hundredths, and thousandths.

New claims 34 and 37 explicitly recite a “decimal system that consists of dividing a day into 10 tenths of a day, with each tenth of a day being divided into 10 hundredths of a day, and with each hundredth of a day being divided into 10 thousandths of a day,” which is neither taught nor suggested by the Ikeda Patent.

However, this is not the only deficiency of the teachings of the Ikeda Patent. In addition, the Ikeda Patent fails to teach “each and every element of the claimed invention, **arranged as in the claim.**” Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick, 221 U.S.P.Q. 481, 485 (Fed. Cir. 1984). Specifically, the Ikeda Patent also does not teach, or even suggest, that the “frequency divider circuit is arranged to supply first control pulses allowing said first time related data item to be formed and displayed by the display” while the “generating means [is] arranged to supply, from auxiliary control pulses originating from said time base, second control

pulses allowing said second time related data item to be formed and displayed by the display” as recited in claim 1.

Specifically, the Ikeda Patent teaches using the same set of control pulses for deriving both the time indication based on the conventional H-M-S system and the time indication based on the system wherein one hour is subdivided into 10,000 time intervals as evident from Figure 3 and col. 4, lines 9-10. Specifically, the Ikeda Patent teaches an oscillator (28) connected to an oscillator circuit (29), which is connected to a frequency divider (30) designed to produce an output frequency of 2.7 Hz, which is a clock signal corresponding to the time period of approximately 0.36 second. According to this approach, a time period of 248 Ikeda minutes, which is equivalent to 4 hours and 8 minutes in the conventional H-M-S time system, can be directly displayed and read as “2 hours and 48 *new minutes*” or as “248 *new minutes*” (col. 4, lines 23-29).

The divider (30) feeds the clock signal, in turn, to a plurality of decimal counters (31), (32), (33), (34) and a scale-of-24 counter (35). Outputs from the counters (31) through (35) are fed through switches (36) through (39) to a multiplexer-decoder circuit (41), which drives the paired display elements (43) through (48). The digital elements (43) through (48) either display time on a scale-of-100 basis or on a scale-of-60 basis depending upon the status of the “scale 10,000/scale 3,600 conversion” circuit (40), which is an arithmetical conversion circuit. Regardless of which scale is selected by circuit (40), time indication is derived directly or indirectly from the outputs of decimal counters (31) through (34) and scale-of-24 counter (35).

The Ikeda Patent does not teach, or even suggest, a “frequency divider” arranged to supply “first control pulses” to a “display” and to provide “auxiliary control

pulses” to “generating means,” wherein the “generating means” is arranged to provide “second control pulses” to the “display” as recited in claims 1 and 37. In other words, the Ikeda Patent does not teach the same elements as recited in claims 1 and 37, or that these same elements are arranged as in claims 1 and 37. As is evident from claims 1 and 37, the timepiece in accordance with the present invention does not require the arithmetical conversion circuit that is used in the device taught by Ikeda.

Lastly, the Ikeda Patent does not teach, or even suggest, first and second displays for displaying the first and second time related data items as recited in new claim 35. Specifically, the Ikeda Patent teaches a single display (3) for displaying time in the “HH:MM:SS” format, wherein hours (HH) are based on the conventional 24-hour format and the minutes (MM) and seconds (SS) are either displayed in the conventional scale-of-60 basis or on the scale-of-100 basis. Clearly, the approach taught by Ikeda can lead to confusion for the user as to what scale the time is being displayed in.

No such confusion can result from the present invention, which utilizes two different displays, wherein one of the displays shows time in the conventional H-M-S format and the other display shows time in the decimal system as recited in claims 17 and 37. In accordance with one embodiment of the present invention, claim 37 recites that the “display” displays the first time related data as “either four digits or first and second hands for displaying hours and minutes in the Hour-Minute-Second system” while the “display” displays the second time related data item “in the decimal system as tenths, hundredths, and thousandths of a day with three digits.” In other words, according to claim 37, the time displayed in the digital system ranges between “000” to

“999” while the time displayed in the H-M-S system is displayed by either the “HH:MM” format or by using conventional minute and second hands.

Additionally, claim 37 recites an “electronic universal timepiece,” which as described on page 1, lines 6-13, of the present specification is a timepiece that simultaneously displays multiple types of time related data. The Ikeda Patent does not teach a “universal timepiece.” The timepiece taught by the Ikeda Patent cannot simultaneously display time in both the scale-of-60 system mode and in the scale-of-100 system mode.

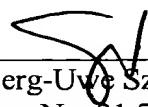
Conclusion

The rejection under 35 U.S.C. § 102(b) is untenable and must be withdrawn because the Ikeda Patent does not teach time related data based on a decimal system as recited in independent claims 17 and 37. Furthermore, the Ikeda Patent does not teach, or even suggest, first and second displays are recited in claim 35. Lastly, the Ikeda Patent does not teach a time base, a frequency divider, and generating means arranged as in the claims 17 and 37.

For all of the above reasons, claims 17-37 are in condition for allowance and a prompt notice of allowance is earnestly solicited. Questions are welcomed by the below signed attorney of record for the Applicants.

Respectfully submitted,

GRIFFIN & SZIPL, PC



Joerg-Uwe Szipl
Reg. No. 31,799

GRIFFIN & SZIPL, PC
Suite PH-1
2300 Ninth Street, South
Arlington, VA 22204

Telephone: (703) 979-5700
Facsimile: (703) 979-7429
Customer No.: 24203